

An evaluation of the problems of open range use system in Northern Cameroon.

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Summary

The concept of the «tragedy of the Commons» has been examined within the economic and legal framework. The extent to which this concept has been applied in the sahelian and subsahelian rangelands has been reviewed. An overall evaluation of the range use system in these areas, and especially in North Cameroon, points to the existence of serious discrepancies between the concept and the practical realities. Consequently, these areas can not be referred to as common rangelands, but rather as open access rangelands. Short-comings in the implementation of the internationalization of the open access rangeland costs in the past, provided a basis for the suggestion of guidelines and a procedure as to how this internationalization could presently be successfully implemented in North Cameroon.

Résumé

Le concept de la «Tragédie du Commun» a été examiné dans le cadre économique et juridique. Les conditions d'application de ce concept dans les pâturages sahéliens et sub-sahéliens ont été revues. Une évaluation des systèmes de pâture de ces régions et plus particulièrement du Nord-Cameroun a montré de sérieux écarts entre le concept et la réalité. Par conséquent, on ne peut considérer les pâturages de ces régions comme des pâturages «communs» mais plutôt comme des pâturages ouverts et accessibles à tous. Les erreurs dans la réalisation de l'internationalisation des coûts afférents aux pâturages librement accessibles à tous dans le passé ont fourni les bases des suggestions des directives et procédures sur la manière dont cette internationalisation pourrait être à présent appliquée avec succès dans le Nord-Cameroun.

Introduction

The animal production system in Cameroon does not take the same form everywhere. It varies between regions, social groups and the various sectors of the economy.

Potential livestock production areas in North Cameroon can be divided into three main parts, namely: the Northern, the Central and the Southern region. The major resource sectors of the northern region (Logone-Chari division) include the seasonally flooded area sandwiching the Logone and Chari rivers and the Western area which borders North-eastern Nigeria and the serbewel region which borders the Lake Chad. Livestock production in this area is mostly in the hands of the Choa Arab herders who utilize the area for the dry season grazing. A system of seasonal migration of breeding herds, and movement of trade cattle to Nigerian and Chadian local markets is common within the region. Such a system facilitates the transmission of diseases. In the central region (Kaélé, Diamaré, Mayo Danay, Mayo Tsanaga, Mayo Sawa divisions), livestock production is mostly limited to cattle, sheep and goats. The human and livestock populations are dense in this extensive plain and conflicts between farmers and herdsmen often arise. Most livestock farmers in the Diamaré division are Fulbé while in the Mayo Danay division, Toupouri and Mundang tribesmen dominate in livestock ownership. The rangeland in the southern region (Mayo Louti, Benoué, Faro, Mayo Rey divisions) and especially the Adamawa region is comparatively better than the northern and central regions. Fali and Fulbe dominate in the livestock production system of the region.

Animal production in these various areas is crucial for the

local economy. However, it is still practised in a traditional manner characterized essentially by nomadism and transhumance, the underlying principle of which is a free for all grazing of the rangeland leading to the «tragedy of the commons».

The concept of the «tragedy of the commons» which was first introduced in literature by Hardin (5) has stimulated arguments ever since. Literature on the «theory of common property resource» accumulated over the past 20 years is summarized by the maxim «everybody's property is nobody's property» (1). This implies that natural resources are physically and legally accessible to more than one user. The resource is said to be free-for-all, with users competing with each other for a greater share, to the detriment of this resource, themselves and the society as a whole. In view of the various problems associated with these systems in North Cameroon, the present study was carried out to assess the situation prevailing in the region from the social, economic and legal framework and suggest some guidelines.

Range use system and related problems

The grazing system in North Cameroon is extensive, with farming and pastoral populations. Extension of agricultural practices into areas traditionally considered as rangelands has exacerbated tension between farmers and pastoralists as the latter see their resource reduced. During the growing season, herders avoid conflicts by taking their livestock away from the crop fields. At the end of this period, they return and let their animals graze the crop by-products while fertilising the

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fields with their manure. As the dry season progresses forage becomes scarce. At the height of this period, (February-April) the last edible stalks have been consumed. Thereafter, animals must survive on a poor diet gleaned from almost bare fields. To keep their animals alive, herders lop entire branches from trees which their cattle then strip of foliage. Herdsmen often also burn what remains as standing straw on the rangelands at the onset of the dry season hoping to trigger an early growth of grass to sustain their animals until it rains.

Nomadism and transhumance production systems are the major way of breeding animals in Northern Cameroon, although the system, after contact with the new management technics rather presents the characteristic of an hybrid which incorporates the old and some elements of an improved livestock production method such as vaccination and treatment campaigns, mineral and nitrogen supplementation etc...

As population expands (Table 1), 80% of which remain in the rural areas, the combined impact of herding and cultivation progressively tells on the fragile environment. Denuded soils are exposed to wind and water erosion. Stripping the land of tree-over not only stops the natural formation of humus but also reduces the value of manure by exposing it to the sun for long periods before the rains decompose and incorporate it into the soil.

The cattle population in Cameroon has doubled between 1960 and 1982 (Table 2). It accounts presently for more than 70% of the total meat supply in Cameroon and represents a total value of 12,3 billion francs CFA (Table 3). This trend is likely to continue for a long time. The quantitative increase mainly due to health care has been followed by a qualitative decrease since nothing has been done to improve the environment and the nutritive condition, and thus had since brought about several problems which have not been equally faced. Furthermore herdsman eat little meat and their survival necessitates the maintenance of a steady milk supply and a number of animals which might help to enhance their survival and status in the society. This need to maintain a

relatively good milk supply and social prestige dictates the herdsman's economic priorities regardless of the condition of the range resource.

The extensive system of cattle production contributes considerably to the present low productivity of animals and is highly influenced by the dry season. In spite of the adaptability of indigenous breeds to the local climatic conditions several factors such as long dry season and forage or feed shortage, still prevent the full expression of their genetic potential. The nomadic way of life of many cattle owners or herders also imposes a lot of trekking on animals such that the energy that would have been converted to production is wasted. However, in any case, migration with animals is triggered by the search of good pasture, water and the desire to escape from taxes and disease infested areas. Therefore, it appears as a necessary «problem».

As the condition deteriorates, pasture becomes depleted, red meat and milk production decreases, fewer calves are born, and more cattle die. The other uses of the herds like purchasing goods, paying taxes, etc... are consequently sacrificed. Thus climate and mainly low rainfall, non integrated agricultural and livestock development, range deterioration and rural population growth seriously affect pastoral economy. Inadequacies in milk production cause the herdsman to sell fewer cattle each year, lowering the off-take rates and adjusting herd usage so as to eliminate these inadequacies. Fundamentally, the true traditional system (which probably does not exist any more) is rather self regulatory, responding automatically to environmental condition and family size.

Economic and legal aspects of rangeland

As stated by Ciriacy-Wantrup and Bishop (1), «common property» fundamentally refers to a distribution of resources property rights, in which a number of owners are co-equal in their right to use the resource. It does not mean that co-equal owners use exactly the same quantities of resource over a period of time, or that their rights are lost through non-use. It is therefore misleading to refer to the concept of «common property resources» or «common» under conditions

TABLE 1
Evolution of human population

Population (1000 inhabitants)	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83
	7604	7794	7989	8389	8389	8604	8828	9046

TABLE 2
Evolution of cattle, sheep and goats population

	1960	1972	1974	1976	1978	1980	1982
Cattle (in thousand of head)	1,750.0	3,803.0	4,057.0	4,255.0	5,100.0	3,600.0	3,500.0
Sheep and goat (in thousand of head)	-	3,615.0	3,858.0	4,116.0	4,393.0	4,687.0	5,000.0

TABLE 3
Value of ruminant production at constant 1975-1977
Prices (in millions CFA Francs)

	1972	1974	1976	1978	1980	1982
Cattle	11,282.0	12,014.0	12,423.0	15,130.0	10,680.0	10,383.0
Sheep & goats	1,466.0	1,543.0	1,646.0	1,757.0	1,875.0	2,000.0

Source: Compile from the Ministry of Livestock Fisheries and Animal Industries Annual Reports, *Annuaire Statistique Agricole 1980-1981*, Note annuelle de statistique 1975-82.

where no institutional arrangements exist. Common property is not «everybody's property». The concept clearly implies that potential resource users who are not members of a group of owners are excluded, unless they have some arrangement with owners to use the resource in question. The structural-function of the resource regulation might be formal or informal; however, it confers the same rights.

In most of the developing world, researchers have often used «common property» to describe a situation for which the term cannot be applied. For most African grazing lands and particularly in Northern Cameroon there are neither formal nor informal regulations binding users. Therefore these lands have been erroneously referred to as common property resources. In reality, much of the Sahelian or Sub-sahelian rangelands have no rules regulating the use or individual grazing rights. They can be appropriately referred to as free and open access areas and their systems referred to as free and open grazing. There is no such thing as restricted entry in the Sahelian or Sub-sahelian rangeland.

The problem of environmental deterioration in the northern regions hinges on the economic relationships that currently govern the use of rangeland. The rangelands are said to be a national «common property» goods under the management of the lamido (village chief). However, they are controlled neither by officials representing the national community nor by individual lamido; consequently, users take what they need when they need, regardless of the effect their actions may have on the maintenance of the rangeland as a resource held in common by members of the lamidat (village) or the national community. As long as rangelands are in good condition this practice poses no problem. This was the case during the precolonial and the early post-colonial period, when herders and the herds were too sparse to seriously tax the available rangelands. However, when effective demands on the resource outstripped the supply, individual demands became competitive. Now, as more and more rangelands are destroyed, herders find it increasingly difficult to meet their herds needs, depending on the same resource.

Because rangeland is erroneously viewed as a «common property», villagers consider its preservation as a «common» or an «official» problem. Worse still, an individual villager's effort to preserve or increase rangeland production would be senseless. He might implement a noxious range plant control program, a good range management system or refrain from overgrazing, but he gains no assurance that he will harvest the fruit of his efforts or abstinence. Another herder may well graze the rangeland before he decides to use it, leaving him no return on his outlay. Thus every herdsman grazes, no one improves the range and use becomes abuse. Demands on the rangelands have escalated to the point where they may well be completely destroyed in the near future.

Logic and mechanic behind the tragedy of the «commons»

Hardin (5) point out that, the tragedy of the «commons» arises from a rangeland open to all (as in North Cameroon), where each herdsman tries to keep as many cattle as possible. Such a situation worked for centuries because several factors such as tribal wars, poaching and disease, kept the number of animals below the carrying capacity of rangeland. But with

the twentieth century technology and the natural behaviour of the herdsman seeking to maximize gains, he asks, «what is the utility to me of adding one more animal to my herd?». This utility has one positive and one negative component (5).

— «The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly + 1».

— «The negative component is a function of the additional overgrazing created by one more animal. Since, however, the effects of over-grazing are shared by all herdsman, the negative utility for any particular decision making herdsman is only a fraction of - 1».

Balancing these utilities, the rational herdsman concludes that the only thing for him to do is to add another animal to his herd. But this is the conclusion reached by each rational herdsman sharing a «common» or open rangeland. The result is obviously a tragedy in which each is locked up into a system which brings him to almost indefinitely increase his herd on a rangeland that is limited. «Ruin is the destination towards which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a common brings ruin to all» (5). This is, however, a simplistic way of theoretically investigated a rather confusing situation. In practice the problem is more complex involving and including survivorship, social and cultural factors, the effects of which cannot be identified and sorted out easily.

What fate for government intervention?

Much is yet to be done before this northern rangeland can be efficiently managed. Even if individuals attempt to develop cooperative rules to enforce a socially rational grazing system, they cannot solve their problem because nobody has enough incentive to keep such an agreement. Benefit from breaking it is always greater than the cost. As a result, an enforceable rule must be imposed from outside or through a traditionally powerful leader.

It was then thought that institutional rules might be viewed as a solution to the problem. Private property rights were consistent with this hypothesis because they could be imposed from outside as a new institution with legislative acts of enclosure. Since that new approach started from the presupposition that individuals pursue strategies independent of the expected actions of others, the institutional arrangement was designed by considering the private individual user. Related to this was the logical assumption that an individual will always graze and conserve his own private range area in a way consistent with its productivity and thus his practice will become beneficial to him and through him to the society as a whole. Many economic consultants and planners unanimously agreed on the imposition of private property rights directed towards the internalization of «common property» externality to halt this tragedy of the open access rangeland.

This approach geared towards solving the open access system problem prevailing in the region, and for which no rules of use have existed failed to integrate the small scale herdsman spread all over the region. Lands formerly used by everybody in the village and the region were being transferred to individuals such as high and powerful

businessman, high ranking government bureaucrats, who were influential in the allocation of ownership rights. These individuals not only often fail to protect range quality because of knowledge in range management, but also had to face fierce opposition from traditional range users mainly the small herdsmen who had been using the ranges for centuries but were ignored in the design and implementation scheme. Thus not only the scheme failed to stop over-grazing and rangeland deterioration, it also has contributed to foster inequality in the already unequal distribution of wealth in the region. Often herders usually overlooked the new grazing rights system and continued to use the range as in the past.

What solution for the region?

A wealth of local knowledge has been ignored in the past so that rarely has anyone seriously approached a nomad and asked him how he appraises, uses and organizes his living in this environment and why he does that. When some rare studies of daily life have been made among pastoral communities, the comprehensiveness of the survival strategies which emerge is very impressive and within their confined region, it is rarely possible to make any radical improvement on the old ways. However, circumstances have rendered the old way not only inappropriate but dangerous from the point of view of sustained and increased production level. Many have further observed the nomad and his original ways of living, and have seen in the tradition of the nomadic community a barrier to progress. Tradition is presented as unbending set of rules, passed from generation to generation, defining without exceptions, how to deal with the community and the environment. However, it seems that the traditions are followed not because the present generations know nothing else, but because long and cruel experience has proven within the confines of the past technology that these were the best rules to follow. Unfortunately, the rules have remained the same but the condition has changed, out-pacing the capacity of nomadic society to adjust.

Yet the appropriate solution for poor rangeland management and overgrazing in the open access rangeland of Northern Cameroon remains the internationalization of its cost by making the public aspects of the range, private property of individuals or groups of individual resource users, who, via the «invisible hand» will hopefully manage the resource in the society's best interest. However, this has to be implemented

properly. In the process of attributing grazing rights, priority has to be given to the local herdsmen within or around the rangeland who, down through centuries, have been using the area to prevent problems such as those arising from the transfer of range to influential people (fences broken, no respect of the new grazing rights, misuse and poor management of rangeland...). Practically, allow individuals or groups of individuals on the rangeland area the freedom to contract with the rest of the society, to establish private rights over particular pieces of land, and to have legal systems that enforce these contracts; the cost of enforcement being paid for by contracting parties themselves or through a subsidies mechanism. Native users of the area regardless of their wealth, power, or social status should be considered first in the right contracting procedure. Since in general herders don't fully grasp the fundamentals of range deterioration, Government should fully provide some incentive or alleviation mechanism such as tax relief, and intense extension to help progressively internationalize and bring private and social cost of a sound rangeland management into balance or by direct control of the major rangeland inputs. In addition, although it is difficult to stimulate animal offtake because the more animals a man owns, the more important he is considered, it is possible for the government to develop an incentive mechanism based on pricing according to quality and a system of rewards for the ranch or group of natural resource users to encourage better systems livestock production or range management.

This suggested approach is the product of foreseen economic forces and is practicable because of its efficiency. The efficiency of private management would result, because the scarcity value of good rangelands has risen to the threshold at which it becomes efficient for society to create such grazing rights. If this were not the case there would be no positive value to society, in creating such a clearly defined property right in rangeland. Indeed, under freedom and enforcement of contracts to establish such rights, not only can private property rights develop over particular pieces of land as the scarcity value to land increases, but such rights will tend to become more and more individualistic and highly valued. The system may progressively be adapted and become an integrated part of the socio-economic system of the region and finally of the country. Hence, rangelands could be protected, conserved, and progressively improved for our use and for the great benefit of future generations.

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